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Thin films of multiferroic spinel CoCr₂O₄

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Propositions

Belonging to the PhD thesis

“Thin films of multiferroic spinel CoCr_2O_4 ”

- 1 To grow flat and highly crystalline fully strained 001- CoCr_2O_4 films on MgO and MgAl_2O_4 , active oxygen is necessary to increase the oxidation power.
- 2 111-oriented spinel CoCr_2O_4 thin films grown on 111- SrTiO_3 are fully relaxed from the first unit cell at the interface, but they show an epitaxial relationship with a 180° twist to the substrate lattice.
- 3 The magneto-crystalline anisotropy of CoCr_2O_4 thin films is mainly dependent of the coordination of the Co^{2+} cation.
- 4 Use of several complex representations of the impedance spectroscopy can give useful information on film properties.
- 5 (111)- CoCr_2O_4 films on (111)- SrTiO_3 have a biquadratic magnetoelectric coupling.
- 6 The orientation of anti-phase boundaries in CoCr_2O_4 spinel thin films are very dependent on growth conditions.